

Notice of Allowability

Application No.

10/730,765

Examiner

Angela M. Lie

Applicant(s)

COBB ET AL.

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/30/2006.
2. ☒ The allowed claim(s) is/are 1-8, 10, 11, 28-30.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


DON WONG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Allowable Subject Matter

1. **Claims 1-8, 10, 11 and 28-30 are allowed.**

2. The following is an examiner's statement of reasons for allowance:

As to claims 1 and 28, the prior art fails to teach a method of describing the layout of a micro device comprising the acts of: reading a micro device layout that is stored in a hierarchical database, analyzing interacting polygons, fragmenting the polygons and optimizing them for the application of the resolution enhancement techniques, wherein all those steps are performed in the manner as further disclosed in claims 1 and 28.

As to claims 2-6, those claims are allowed by the virtue of their dependency on claim 1.

As to claims 7 and 29, the prior art fails to teach a method of preparing data for the application of an optical and process correction tool to a layout stored in a hierarchical database defining a microdevice to be manufactured lithographically, comprising the acts of: fragmenting polygons, selectively promoting interacting polygons and refragmenting the polygons for the application of the OPC tool, wherein all those steps are performed in the manner as disclosed in claims 7 and 29.

As to claim 8, this claim is allowed by the virtue of its dependency on claim 7.

As to claims 10 and 30, the prior art fails to teach a method of preparing data stored within a hierarchical database prior to performing optical and process correction (OPC) on the data for polygons describing microdevice to be manufactured

lithographically comprising: selectively promoting copies of polygons and fragmenting those polygons for the application of an OPC tool, wherein those steps are performed in the manner as disclosed in claims 10 and 30.

As to claim 11, this claim is allowed by the virtue of its dependency on claim 10.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

The Prior Art

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kim et al (US Patent No. 6066180) disclose an automatic generation of phase shift masks using net coloring, this reference further teaches resolution enhancement methods, however this art fails to teach flattening interacting polygons to the same hierarchical level.
- Liebmann (US Patent No. 5553273) discloses a vertex minimization in a smart optical proximity correction system, however this reference fails to teach resolution enhancement techniques and promoting selected interacting polygons on the same database level and then refragmenting those polygons for the application of optical correction.

- Kerzman et al (US Patent No. 6546532) disclose a method and apparatus for traversing and placing cells using a placement tool, however this reference fails to teach resolution enhancement technique or optical process correction along with fragmenting selected polygons as disclosed in claims 1 or 7.
- Chang et al (US Patent No. 6453452) disclose a method and apparatus for data hierarchy maintenance in a system for mask description, however this reference does not teach optimizing fragmented polygons for resolution enhancement techniques and does not teach refragmenting the polygons for application of the optical process correction.
- Pierrat et al (US Patent No. 6539521) disclose a dissection of corners in a fabrication layout for correcting proximity effects, however this reference fails to teach optimizing fragmented polygons for resolution enhancement techniques and further does not teach refragmenting the polygons for application of the optical process correction.

Inquiry

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. Lie whose telephone number is 571-272-8445. The examiner can normally be reached on M-F.

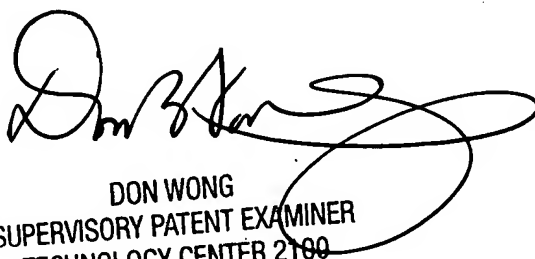
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5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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